# Even Answers for problems on assignment sheet in bold print

**Homeworks 1a & 1b (Section 5.2 from algebra part of text and R.1 from calculus part of text)**

22) binomial, degree 5

42) $q^3 + 8q^2 - 4q$

48) $-8x - 12$

56) $2x^5 - x^4 - 2x^3 + 1$

62) $t^3 - 5t^2 - t$

70) $-7z^2 + 7z - 3$

72) $-m^3 + 8m^2 - 8m$

4) $9r^2 - 4r + 19$

6) $0.8r^2 + 2.6r - 1.5$

**Homeworks 2a & 2b (Sections 3.5 and 7.4 from algebra part of text; sections 1.2 and 2.1 from calculus part of text)**

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14) not a function, Domain is $\{2, 3, 5, 11, 17\}$, Range is $\{10, 15, 19, 27\}$

16) a function, Domain is $\{-2, 0, 2, 4\}$, Range is $\{-3\}$

24) a function, Domain: $(-\infty, \infty)$, Range: $(-\infty, \infty)$

26) not a function, Domain: $[0, \infty)$, Range: $(-\infty, \infty)$

28) a function, Domain: $(-\infty, \infty)$

32) a function, Domain: $[0, \infty)$

34) a function, Domain: $(-\infty, 0) \cup (0, \infty)$

36) a function, Domain: $\left(-\infty, -\frac{9}{2}\right]$

38) a function, Domain: $(-\infty, -2) \cup (-2, \infty)$

46) $f\left(\frac{7}{3}\right) = -3$

50) $g(k) = -k^2 + 4k + 1$

52) $g(-x) = -x^2 - 4x + 1$

54) $f(x-2) = -3x + 10$

58) $f(x+h) - f(x) = h(-2x - h + 4)$

60) $f(10) - g(10) = 33$

62) (a) $f(2) = 5$ (b) $f(-1) = 11$

64) (a) $f(2) = 1$ (b) $f(-1) = 7$

66) (a) $f(2) = -3$ (b) $f(-1) = 2$

68) (a) $f(x) = \frac{1}{4}x - 2$ (b) $f(3) = -\frac{5}{4}$

72) (a) $f(x) = \frac{2}{5}x + \frac{9}{5}$ (b) $f(3) = 3$

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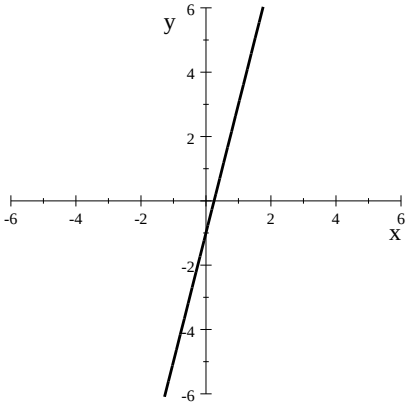
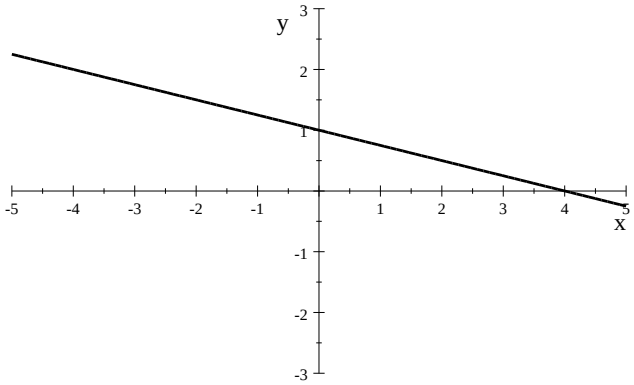
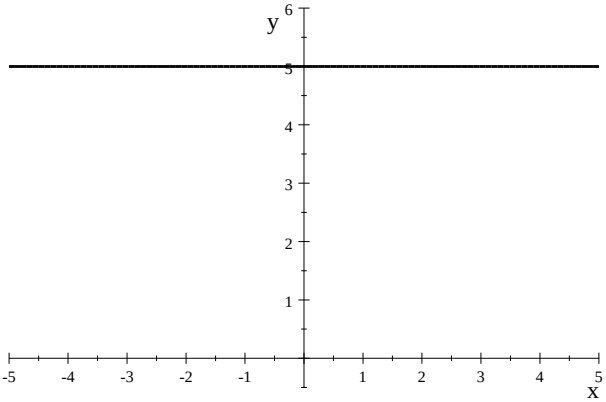
76) 


(a) Domain: $(-\infty, \infty)$ (b) Range: $(-\infty, \infty)$

78) 


(a) Domain: $(-\infty, \infty)$ (b) Range: $(-\infty, \infty)$

82) 


(a) Domain: $(-\infty, \infty)$ (b) Range: $\{5\}$

86) (b) $f(x) = 2.5x$

90) (a) Graph is a function because it passes the vertical line test.
(b) Domain: $[0, 24]$ (c) approximately 1200 megawatts of electricity used
(d) most used at 18 hours (6 PM), least used at 4 hours (4 AM)
(e) $f(12) = 2100$ At noon, 2100 megawatts of electricity used

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6) $g(2.5)=2$ 10) $g(k^2)=2k^2-3$

27) (b) \$11 (e) 480 watches (i) 1333 watches

33) (a) $C(x)=3.5x+90$ (b) 17 shirts (c) 108 shirts

35) (a) $C(x)=0.097x+1.32$ (b) \$1.32 (c) \$98.32 (d) \$98.417

(e) marginal cost of $1001^{st}$ cup is approximately \$0.097 or \$0.10

(f) The marginal cost of any cup (cost of producing any additional cup of coffee once 1000 cups have been made) is \$0.097 or about 9.7 cents

38) (a) 3 medals (b) \$3289 (c) 7 medals

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2) $y$ is a function of $x$ 4) $y$ is not a function of $x$

6) $y$ is a function of $x$ 8) $y$ is not a function of $x$

18) Domain: $(-\infty,\infty)$ 22) Domain: $(-\infty,\infty)$

26) Domain: $(-\infty,-6)\cup(-6,6)\cup(6,\infty)$

34) $D=[-5,\infty),\quad R=[0,\infty)$ 35) $D=(-\infty,\infty)$

38)

$D=[-2,4],\quad R=[0,5]$ (a) $f(-2)=5,$ (b) $f(0)=0,$ $(c)$ $f(\frac{1}{2})=1,$

$(d)$ $x$ values of $-\frac{1}{4},\ \frac{1}{2},\ \frac{3}{2},\ \frac{5}{2}$

40) $D=[-2,4],\quad R=\{3\}$

$(a)$ $f(-2)=3,$ $(b)$ $f(0)=3$ $(c)$ $f(\frac{1}{2})=1$

$(d)$ no values of $x$

47) $g(r+h)=r^2+2rh+h^2-2r-2h+5$

50) $g(-\frac{5}{z})=\frac{150}{z^2}-2$

51) (a) $f(x+h)=\dfrac{1}{x+h}$ (b) $f(x+h)-f(x)=\dfrac{-h}{x(x+h)}$

(c) $\dfrac{f(x+h)-f(x)}{h}=\dfrac{-1}{x(x+h)}$

58) is a function

62) is not a function

76(a) 66.2 kcal/day, 222.4 kcal/day